

HYDRAULIC PUMP AND MOTOR MOUNTING AND DRIVE DIMENSIONS

1. **Scope**—This SAE Standard applies to hydraulic pumps and motors used on off-road self-propelled work machines as described in categories 1 through 5 of SAE J1116 JUN86.
- 1.1 **Purpose**—To provide a progression of standard mounting flanges and shafts that are dimensionally compatible.
2. **References**
- 2.1 **Applicable Publications**—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.
- 2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.
- SAE J390—Dual Dimensioning
SAE J1116 JUN86—Categories of Off-Road Self-Propelled Work Machines
SAE TSB 003—Rules for SAE Use of SI (Metric) Units
- 2.1.2 ANSI PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.
- ANSI B1.1—Screw Threads
ANSI B92.1-1970—Involute Splines and Inspection
3. **Units**
- 3.1 The International System of Units (SI) is used herein in accordance with Reference 7.1.
- 3.2 Customary U.S. units are given for information purposes, and these appear in parentheses next to their SI counterpart.
4. **Identification Code**
- 4.1 Flange identification codes are found in Table 1.
- 4.1.1 The number preceding the dash (—) is an approximation, in millimeters, of the mounting flange pilot diameter.

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4.1.2 The number following the dash (—) states the number of mounting holes in the flange.

TABLE 1—DIMENSIONS OF 2 AND 4 BOLT PUMP AND MOTOR MOUNTING FLANGES

Identification Code	Pilot Dimensions A Noted	Pilot Dimensions W Noted	Pilot Dimensions X Min	Pilot Dimensions Y Max	2 Bolt Type B Cast Dim.	2 Bolt Type J	2 Bolt Type K	2 Bolt Type M Noted	2 Bolt Type P ₁ Cast Dim.	4 Bolt Type S	4 Bolt Type R Noted	4 Bolt Type P ₂ Cast Dim.
50— ⁽¹⁾	50.80	6.4	—	0.8	64	14	82.6	10.3	10	—	—	—
(A—A)	(2.000)	(0.250)	—	(0.03)	(2.50)	(0.56)	(3.250)	(0.406)	(0.38)	—	—	—
82— ⁽¹⁾	82.55	6.4	—	0.8	95	18	106.4	11.1	12	—	—	—
(A)	(3.250)	(0.250)	—	(0.03)	(3.75)	(0.72)	(4.188)	(0.438)	(0.47)	—	—	—
101— ⁽¹⁾	101.60	9.7	51	1.5	120	25	146.0	14.3	14	89.8	14.3	14
(B)	(4.000)	(0.380)	(2.00)	(0.06)	(4.75)	(0.99)	(5.750)	(0.562)	(0.56)	(3.536)	(0.562)	(0.56)
127— ⁽¹⁾	127.00	12.7	64	1.5	148	31	181.0	17.5	16	114.5	14.3	16
(C)	(5.000)	(0.500)	(2.50)	(0.06)	(5.81)	(1.22)	(7.125)	(0.688)	(0.62)	(4.508)	(0.562)	(0.62)
152— ⁽¹⁾	152.40	12.7	70	1.5	200	40	228.6	20.6	19	161.6	20.6	19
(D)	(6.000)	(0.500)	(2.75)	(0.06)	(7.88)	(1.55)	(9.000)	(0.812)	(0.75)	(6.364)	(0.812)	(0.75)
165— ⁽¹⁾	165.10	15.9	70	2.3	270	55	317.5	27.0	25	224.5	20.6	19
(E)	(6.500)	(0.625)	(2.75)	(0.09)	(10.62)	(2.15)	(12.500)	(1.062)	(1.00)	(8.839)	(0.812)	(0.75)
177— ⁽¹⁾	177.80	15.9	70	2.3	300	60	350.0	27.0	25	247.5	27.0	25
(F)	(7.000)	(0.625)	(2.75)	(0.09)	(11.75)	(2.37)	(13.781)	(1.062)	(1.00)	(9.745)	(1.062)	(1.00)

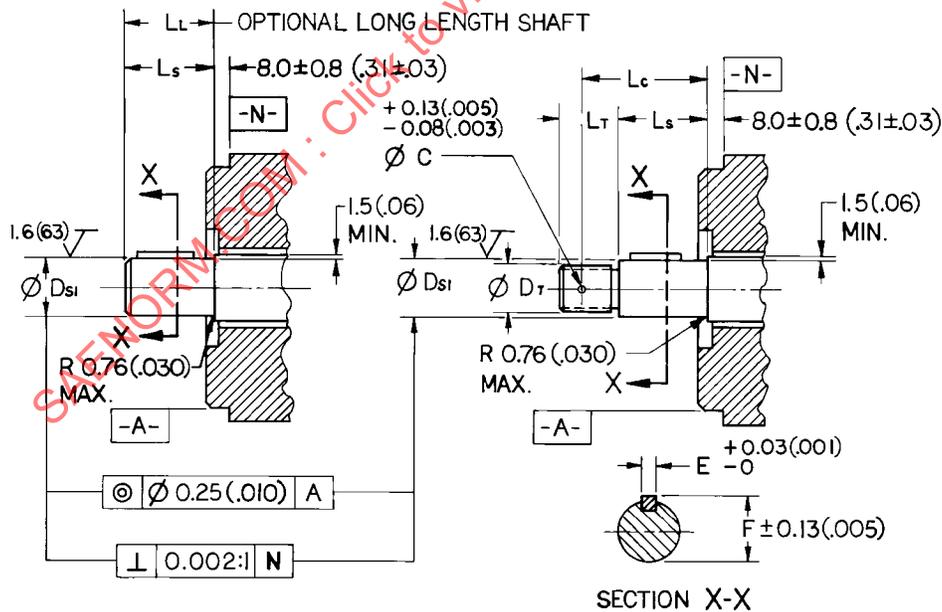
1. —2 2 Bolt, —4 4 Bolt Flange

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TABLE 2—DIMENSIONS OF STRAIGHT SHAFTS—WITHOUT AND WITH THREAD

Identification Code	Straight Shaft D _{S1} Max	Straight Shaft D _{S1} Min	Straight Shaft L _S	Straight Shaft F Noted	No Thread —1 E Noted	No Thread —1 L _L Optional	With Thread —2 D _T ANSI B1.1	With Thread —2 C Noted	With Thread —2 L _C	With Thread —2 L _T
13— ⁽¹⁾	12.70	12.67	19	14.07	3.18	—	3/8—24	2.4	29	14.25
(A—A)	(0.500)	(0.499)	(0.750)	(0.554)	(0.125)	—	UNF 2A	(0.094)	(1.125)	(0.562)
16— ⁽¹⁾	15.88	15.85	24	17.60	3.97	51	1/2—20	3.2	34	18.25
(A)	(0.625)	(0.624)	(0.938)	(0.693)	(0.1563)	(2.00)	UNF 2A	(0.125)	(1.344)	(0.719)
19— ⁽¹⁾	19.05	19.02	24	21.10	4.78	51	1/2—20	3.2	34	18.25
(A)	(0.750)	(0.749)	(0.938)	(0.831)	(0.188)	(2.00)	UNF 2A	(0.125)	(1.344)	(0.719)
22— ⁽¹⁾	22.22	22.20	33	24.90	6.35	63	5/8—18	4.0	48	23.00
(B)	(0.875)	(0.874)	(1.312)	(0.982)	(0.250)	(2.50)	UNF 2A	(0.156)	(1.875)	(0.906)
25— ⁽¹⁾	25.40	25.35	38	28.10	6.35	70	3/4—16	4.0	52	27.00
(B—B)	(1.000)	(0.998)	(1.500)	(1.106)	(0.250)	(2.75)	UNF 2A	(0.156)	(2.062)	(1.062)
32— ⁽¹⁾	31.75	31.70	48	35.20	7.94	76	1—12	4.0	67	31.00
(C)	(1.250)	(1.248)	(1.875)	(1.386)	(0.3125)	(3.00)	UNF 2A	(0.156)	(2.625)	(1.219)
38— ⁽¹⁾	38.10	38.05	54	42.27	9.52	83	1-1/8—12	4.0	73	34.90
(C—C)	(1.500)	(1.498)	(2.125)	(1.664)	(0.375)	(3.25)	UNF 2A	(0.156)	(2.875)	(1.375)
44— ⁽¹⁾	44.45	44.40	67	49.30	11.11	92	1-1/4—12	4.0	89	39.70
(D & E)	(1.750)	(1.748)	(2.625)	(1.941)	(0.4375)	(3.62)	UNF 2A	(0.156)	(3.500)	(1.562)

1. —1 without thread, —2 with thread



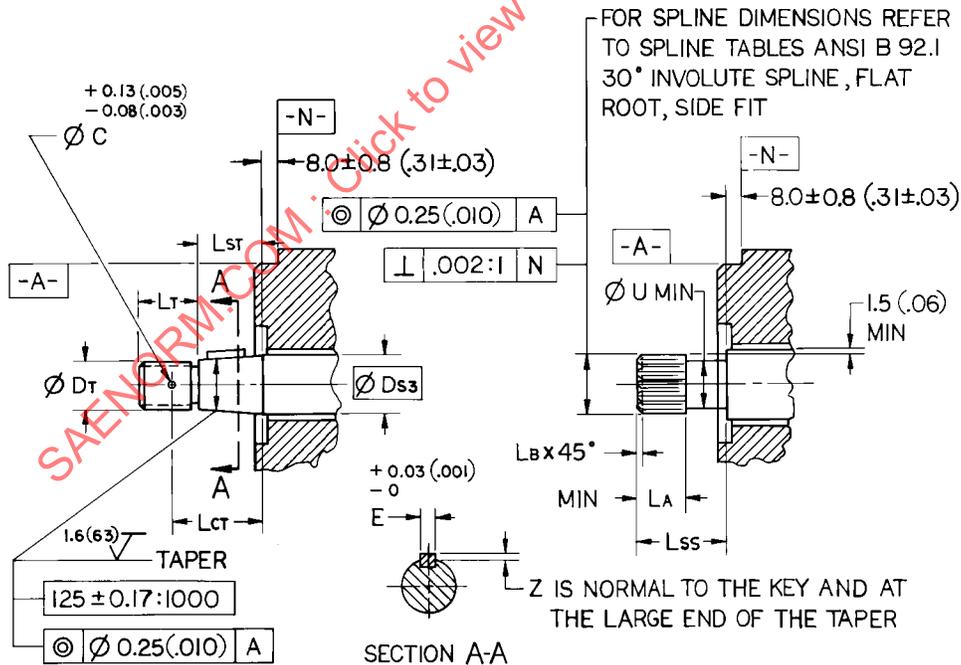
Unspecified tolerances:
 mm diam. - 1 place ±0.5; 2 place ±0.25
 (inch dim. - 2 place ±0.02; 3 place ±0.010)
 micrometer (micro inch)

Dimensions in mm (in)

FIGURE 2—DIMENSIONS OF STRAIGHT SHAFTS—WITHOUT AND WITH THREAD

TABLE 3—DIMENSIONS OF TAPER SHAFT ENDS WITH THREAD—3

Identification Code	D_{S3}	D_T ANSI B1.1	C Noted	L_{CT}	L_{ST}	L_T	E Noted	Z Max	Z Min
									Z Min
13—3	12.70	5/16—32	2.0	25	17.48	12.70	3.18	1.63	1.37
(A—A)	(0.500)	UNF 2A	(0.078)	(0.984)	(0.688)	(0.500)	(0.125)	(0.064)	(0.054)
16—3	15.88	1/2—20	3.2	28	17.48	18.26	3.97	2.13	1.88
(A)	(0.625)	UNF 2A	(0.125)	(1.094)	(0.688)	(0.719)	(0.1563)	(0.084)	(0.074)
19—3	19.05	1/2—20	3.2	34	23.83	18.26	4.78	2.54	2.29
	(0.750)	UNF 2A	(0.125)	(1.344)	(0.938)	(0.719)	(0.188)	(0.100)	(0.090)
22—3	22.22	5/8—18	4.0	43	28.58	23.01	6.35	3.33	3.07
(B)	(0.875)	UNF 2A	(0.156)	(1.688)	(1.125)	(0.906)	(0.250)	(0.131)	(0.121)
25—3	25.40	3/4—16	4.0	49	34.92	26.97	6.35	3.33	3.07
(B—B)	(1.00)	UNF 2A	(0.156)	(1.938)	(1.375)	(1.062)	(0.250)	(0.131)	(0.121)
32—3	31.75	1—12	4.0	49	34.92	30.96	7.94	4.11	3.86
(C)	(1.25)	UNF 2A	(0.156)	(1.938)	(1.375)	(1.219)	(0.3125)	(0.162)	(0.152)
38—3	38.10	1-1/8—12	4.0	62	47.62	34.92	9.52	4.93	4.67
(C—C)	(1.50)	UNF 2A	(0.156)	(2.438)	(1.875)	(1.375)	(0.375)	(0.194)	(0.184)
44—3	44.45	1-1/4—12	4.0	71	53.98	39.67	11.11	5.72	5.46
(D & E)	(1.75)	UNF 2A	(0.156)	(2.812)	(2.125)	(1.562)	(0.4375)	(0.225)	(0.215)
50—3	50.80	1-1/4—12	4.0	90	73.02	39.67	12.70	6.50	6.25
(F)	(2.00)	UNF 2A	(0.156)	(3.562)	(2.875)	(1.562)	(0.500)	(0.256)	(0.246)



Unspecified tolerances:
 mm diam. - 1 place ± 0.5 ; 2 place ± 0.25
 (inch dim. - 2 place ± 0.02 ; 3 place ± 0.010)
 micrometer (micro inch)

Dimensions in mm (in)

FIGURE 3—DIMENSIONS OF TAPER SHAFT ENDS WITH THREAD—3